



STATEMENT

I, Makoto KONDO, of c/o NGB Corporation, Toranomom East Bldg. 7-13, Nishi-shimbashi 1-chome, Minato-ku, Tokyo 105-8408 Japan, hereby state that I am conversant with both the English and Japanese languages and certify to best of my knowledge and belief that the attached is a true and correct English translation of the priority document of Japanese patent application 2001-179623 filed on June 14, 2001.

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近藤 誠

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JAPAN PATENT OFFICE

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the following application as filed with this Office.

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Applicant(s): CARMATE MFG. CO., LTD.

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[NAME OF ITEM] DRAWING 1

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[Title of Invention] BINDING FOR SNOWBOARD

[Claims]

[Claim 1]

A binding for a snowboard, comprising:
a base plate;

one band having one end thereof mounted on the one-side
rising portion of said base plate;

the other band having one end thereof mounted on
the-other-side rising portion of said base plate; and,

a connecting member for connecting together the respective
other ends of said two bands;

wherein at least one of means for mounting said bands onto
said rising portions of said base plate is composed of a hole
formed in one of said bands, a plurality of holes each having
a hook groove respectively formed in said rising portion of
said base plate, a pin including a projection to be inserted
into said hook groove, and a lever disposed on said pin for
rotating said pin,

characterized in that, in case where, after said pin is
inserted into one of said holes with a hook groove, said pin
is rotated, said projection is inserted into said arc-shaped
groove, thereby preventing said pin from being removed from
said hole with a hook groove.

[Claim 2]

A binding for a snowboard, comprising:
a base plate;

one band having one end thereof mounted on the one-side rising portion of said base plate;

the other band having one end thereof mounted on the-other-side rising portion of said base plate; and,

a connecting member for connecting together the respective other ends of said two bands;

wherein at least one of means for mounting said bands onto said rising portions of said base plate is composed of a hole formed in one of said bands, a plurality of holes each having a hook groove respectively formed in said rising portion of said base plate, a pin including a projection to be inserted into said hook groove, a lever disposed on said pin for rotating said pin, and an arc-shaped groove formed in a desired depth portion of its associated one of said plurality of holes with a hook groove coaxially with said associated hole with a hook groove so as to be in communication with said hook groove,

characterized in that, in case where, after said pin is inserted into one of said holes with a hook groove, said pin is rotated, said projection is inserted into said arc-shaped groove, thereby preventing said pin from being removed from said hole with a hook groove.

[Claim 3]

The binding for a snowboard as set forth in Claim 1 or 2, further including means for holding a lever for rotating said pin at a desired rotational position.

[Claim 4]

The binding for a snowboard as set forth in Claim 3, wherein said means for holding said pin rotating lever is composed of a projecting portion provided on said lever, and a hole formed in said rising portion in such a manner that said projecting portion can be fitted with said hole.

[Claim 5]

The binding for a snowboard as set forth in Claim 3, wherein said means for holding said pin rotating lever is composed of a projection surface formed in said rising portion in such a manner that said lever is able to climb over said projection surface.

[Claim 6]

A binding for a snowboard, wherein one of said two bands is composed of one belt for fastening the leading end portion of the tiptoe portion of a boot and the other belt for fastening the upper portion of said tiptoe portion of said boot.

[DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[FIELD OF THE INVENTION]

The present invention relates to a binding for a snowboard.

[0002]

[DESCRIPTION OF THE RELATED ART]

Now, Fig. 29 is an explanatory view of a conventional binding for a snowboard. In Fig. 29, reference character 1 designates a base plate to be fixed to a snowboard main body (not shown), 2 a boot, 3 a back support fixed to the rear end of the base plate 1 in such a manner that it can be contacted with the rear surface of the boot 2, 4 a cushion mounted on the inner surface of the back support 3, 5 an ankle strap disposed on the base plate 1 for fastening the instep of the boot 2, 6 ankle strap pad mounted on the inner surface of the ankle strap 5, 7 a toe strap disposed on the base plate 1 for fastening the tiptoe portion of the boot 2, and 8 a toe strap pad mounted on the inner surface of the toe strap 7, respectively.

[0003]

Now, Fig. 30 is an explanatory detailed view of the toe strap 7. In Fig. 30, reference character 9a designates one band having one end thereof fixed to the one-side rising portion 10 of the base plate 1, 9b the other band having one end thereof fixed to the other-side rising portion 10 of the base plate 1, 11 a buckle connected to the free end of one band 9a, 12 a ratchet belt connected to the buckle 11, and 13 a lock part including a ratchet pawl for connecting the ratchet belt 12 to the other band 9b.

[0004]

By the way, the ankle strap 5 has the same structure as

the toe strap 7.

[0005]

In the thus structured conventional binding for a snowboard, when mounting the boot 2 onto the base plate 1, the engagement between the ratchet belts 12 and lock parts 13 of the ankle strap 5 and toe strap 7 is removed, and one band 9a and the other band 9b are separated from each other by both hands; and, after then, the boot 2 is placed onto the base plate 1 from above, the ratchet belt 12 is inserted into the lock part 13 including a ratchet pawl in such a manner as shown in Figs. 30 and 31, and the buckle 11 is then fastened to thereby fix the instep portion and tiptoe portion of the boot 2 to the base plate 1.

[0006]

In the conventional binding of this type, in the rising portion 10 of the base plate 1, there are formed a plurality of holes which are used to fix one of the bands 9a, 9b such that the position thereof can be adjusted. That is, when adjusting the boot fixed state again, without removing the base plate from the snowboard, one of the bands is removed from its previously engaged one of the plurality of holes and is inserted into a new one of the plurality of holes to fix thereby the boot to the base plate.

[0007]

[PROBLEMS TO BE SOLVED BY THE INVENTION]

However, since the bands 9a, 9b and the rising portions 10 of the base plate 1 are fixed by bolts and nuts, a tool must be used to mount and remove them, which is troublesome.

[0008]

Also, because the toe strap 7 is simply fastened from the upper portion of the tiptoe portion thereof, there is play in the tiptoe direction, so that the boot cannot be fastened sufficiently.

[0009]

The present invention aims at eliminating the drawbacks found in the conventional binding for a snowboard.

[0010]

[MEANS FOR RESOLVING THE PROBLEM]

A binding for a snowboard according to the present invention is provided with:

- a base plate;

- one band having one end thereof mounted on the one-side rising portion of said base plate;

- the other band having one end thereof mounted on the-other-side rising portion of said base plate; and,

- a connecting member for connecting together the respective other ends of said two bands;

wherein at least one of means for mounting said bands onto said rising portions of said base plate is composed of a hole formed in one of said bands, a plurality of holes each having

a hook groove respectively formed in said rising portion of said base plate, a pin including a projection to be inserted into said hook groove, and a lever disposed on said pin for rotating said pin,

characterized in that, in case where, after said pin is inserted into one of said holes with a hook groove, said pin is rotated, said projection is inserted into said arc-shaped groove, thereby preventing said pin from being removed from said hole with a hook groove.

[0011]

A binding for a snowboard according to the present invention is provided with:

a base plate;

one band having one end thereof mounted on the one-side rising portion of said base plate;

the other band having one end thereof mounted on the other-side rising portion of said base plate; and,

a connecting member for connecting together the respective other ends of said two bands;

wherein at least one of means for mounting said bands onto said rising portions of said base plate is composed of a hole formed in one of said bands, a plurality of holes each having a hook groove respectively formed in said rising portion of said base plate, a pin including a projection to be inserted into said hook groove, a lever disposed on said pin for rotating

said pin, and an arc-shaped groove formed in a desired depth portion of its associated one of said plurality of holes with a hook groove coaxially with said associated hole with a hook groove so as to be in communication with said hook groove,

characterized in that, in case where, after said pin is inserted into one of said holes with a hook groove, said pin is rotated, said projection is inserted into said arc-shaped groove, thereby preventing said pin from being removed from said hole with a hook groove.

[0012]

The pin rotating lever is characterized by means for holding a lever for rotating said pin at a desired rotational position.

[0013]

The means for holding said pin rotating lever is characterized by a projecting portion provided on said lever, and a hole formed in said rising portion in such a manner that said projecting portion can be fitted with said hole.

[0014]

The binding for a snowboard is characterized in that the means for holding said pin rotating lever is composed of a projection surface formed in said rising portion in such a manner that said lever is able to climb over said projection surface.

[0015]

The binding for a snowboard is characterized in that one of said two bands is composed of one belt for fastening the

leading end portion of the tiptoe portion of a boot and the other belt for fastening the upper portion of said tiptoe portion of said boot.

[0016]

[MODE FOR CARRYING OUT THE INVENTION]

Now, description will be given below of the preferred embodiments of a binding for a snowboard according to the invention with reference to the accompanying drawings.

[0017]

In a binding for a snowboard according to the invention, as fixing means for fixing one of bands 9a, 9b of an ankle strap 5 and a toe strap 7 to the rising portion 10 of a base plate 1, instead of bolts and nuts, as shown in Figs. 1 to 6, there is used a pin 16 which can be inserted into a hole 14 formed in one of the bands 9a, 9b as well as one of a plurality of holes 15 formed in the rising portion 10 of the base plate 1; and, a lever 17 for rotating the pin 16 is fixed to the outer end of the pin 16 in such a manner that it is perpendicular to the pin 15.

[0018]

In the rising portion 10 of the base plate 1 in which the hole 15 is formed, there is formed an insertion groove 19 which is used to insert the above band into the central portion of the upper end face of the rising portion 10; and, due to formation of the insertion groove 19, the rising portion 10 forks into

outer and inner sections 10a and 10b. A hole to be formed in the outer section 10a of the forked rising portion 10 is formed as a hook-shaped hole 15a including a hook groove 20 formed in one side surface thereof and, on one side surface of the outer end portion of the pin 16, there is provided a projection 18 which corresponds to the hook groove 20. And, in an arbitrary depth portion of the hole 15a, there is concentrically formed an arc-shaped groove 21 which communicates with the hook groove 20 and corresponds to the projection 18 in length and width.

[0019]

By the way, the groove 19 may be omitted. That is, the inner section of the forked shape of the rising portion 10 of the base plate 1 may not be formed.

[0020]

Since a binding for a snowboard according to the invention is structured in the above-mentioned manner, as shown in Fig. 2, in case where the pin 16 of the lever 17 is inserted into the hole 15 of the rising portion 10 and the hole 14 of the band in a state where the projection 18 of the pin 16 is situated at a position corresponding to the hook groove 20 of the hook-shaped hole 15a, for example, in a state where the lever 17 stands erect, the projection 18 of the pin 16 is guided through the hook groove 20 up to the arc-shaped groove 21. In this state, as shown in Fig. 7, in case where the lever 17 is incliningly rotated clockwise, for example, by 90° , the projection 18 is

allowed to move within the arc-shaped groove 21 to a position where the projection 18 is unable to return from the hook groove 20; and, therefore, the pin 16 is prevented from removing from the hole 15, so that one of the bands 9a, 9b can be positively fixed to the base plate 1.

[0021]

By the way, in case where the lever 17 is made to slidingly contact with the outer surface of the outer section 10a of the rising portion 10 in a state where the projection 18 of the pin 16 is inserted into the arc-shaped groove 21, the lever 17 can be prevented from playing.

[0022]

Also, as shown in Figs. 8 and 9, instead of the lever 17, there may be used a circular-shaped knob part 22. That is, using the knob part 22, the pin 16 may be rotated.

[0023]

Now, Fig. 10 shows a second embodiment of fixing means used in a binding for a snowboard according to the invention.

In the present embodiment, on the side of the loose end portion of the lever 17 that is opposed to the outer surface of the outer section 10a of the rising portion 10, there is provided a projecting portion 23; and, as shown in Fig. 11, in the position relation where the pin 16 and projection 18 are inserted into the hole 15a and groove 20, the projecting portion 23 is situated at a position beyond the end face 24 of the outer section 10a

of the rising portion 10. And, in case where the lever 17 is incliningly turned clockwise from this position, as shown in Fig. 12, the projecting portion 23 is moved up onto the end face 24 of the outer section 10a of the rising portion 10 and, after then, the lever 17 is flexed and is thereby slidingly contacted with the outer surface of the outer section 10a; and, for example, when the lever 17 is incliningly rotated by a given angle such as by 90° , the projecting portion 23 may be fitted into the other hole 15 of the rising portion of the base plate 1. According to the present embodiment, there is eliminated a fear that the lever 17 can be rotated without good reason and the pin 16 can be removed from the hole 15 with no good reason.

[0024]

By the way, as shown in Fig. 13, in the direction of the base portion of the lever 17 from the free end face thereof, there may be formed two slits 25 with the projecting portion 23 between them to thereby facilitate the flexing of a lever portion 26 having the projecting portion 23.

[0025]

Now, Figs. 14 and 15 shows a third embodiment of fixing means used in a binding for a snowboard according to the invention.

In the present, instead of the projecting portion 23 provided in the second embodiment, there is provided a projection surface 27 in the outer surface of the outer section 10a of the rising

portion 10; and, when the lever 17 is incliningly turned clockwise from its erect state shown in Fig. 14 by 90° into its another state shown in Fig. 15, the lower surface of the base end of the lever 17 may be situated at a position beyond the projection surface 27. According to the present embodiment, there is no possibility that the lever 17 can play counterclockwise, thereby being able to prevent the pin 16 from being removed from the hole 15 without good reason. By the way, the projection surface 27, as shown in Figs. 16 and 17, may also be replaced with a pin 27. In this case, in order to prevent the lever 17 from rotating excessively clockwise from the state shown in Fig. 17, preferably, there may be provided a stop pin 28.

[0026]

Now, Figs. 18 to 22 shows a fourth embodiment of fixing means used in a binding for a snowboard according to the invention.

In the present embodiment, there is formed a groove 30 in the base end portion of the lever 17 to thereby turn the lever 17 into a forked shape, the outer end portion of the pin 16 is inserted into the groove 30, and the lever 17 and pin 16 are pivotally supported through a pivot support pin 29 in such a manner that they can be incliningly rotated with respect to each other. And, in a state where, as shown in Fig. 19, the longitudinal-direction axis of the lever 17 is matched to the axis of the pin 16, the pin 16 is inserted into the hole 15 of the rising portion 10 and also into the hole 14 of the belts

9a, 9b; as shown in Figs. 20 and 21, the lever 17 is rotated clockwise by 90° about the axis of the pin 16; and next, as shown in Fig. 22, the lever 17 is incliningly rotated about the pivot support pin 29 by 90° with respect to the pin 16 to thereby fit the projecting portion 23 into the other hole 15 in such a manner that the corner portion 31 of the forked end face of the lever 17 can be elastically engaged with the outer surface of the outer section 10a of the rising portion 10. According to the present embodiment, there is eliminated a fear that the lever 17 can be played with respect to the pin 16 without good reason and the pin 16 can be removed from the hole 15 with no good reason.

[0027]

Now, Figs. 23 and 24 shows a fifth embodiment of fixing means used in a binding for a snowboard according to the invention.

In the present, to the free end of one (for example, 9a) of the bands 9a, 9b of the conventional toe strap 7, there is fixed one end of a band 33 which is composed of one belt 32a for fastening the upper portion of the tiptoe portion of a boot and the other belt 32b for fastening the leading end portion of the tiptoe portion of the boot; and, on the other end of the band 33, there is mounted a buckle 34; one end of the band 9b is inserted into the buckle 34 to thereby fasten the band 33 and, at the same time, an expandable pad or a connecting member 35 is fixedly interposed between the belts 32a and 32b. The belts 32a and

32b may preferably be formed of the material that can be expanded and compressed to a slight degree.

[0028]

In the present embodiment, the upper portion and leading end portion of the tiptoe portion of the boot can be fastened at the same time using one belt 32a and the other belt 32b.

[0029]

By the way, the two end portions of one belt 32a and the other belt 32b may be formed integrally with each other, or, as shown in Figs. 25 and 26, one-side end portions of the belts 32a and 32b may be formed integrally with each other, while the other-side end portions thereof may be pivotally supported by a pin 36 in such a manner that they can be incliningly rotated with respect to each other.

[0030]

Also, the connecting member 35, as shown in Fig. 27, may be formed of the material that is thick and has good cushioning, or, as shown in Fig. 28, it may be formed of the material that has good cushioning and is thin.

[0031]

[EFFECTS OF THE INVENTION]

As has been described heretofore, in a binding for snowboard according to the invention, there can be provided a great advantage that the bands of the ankle strap and toe strap can be removed easily from the base plate without using a tool.

[0032]

Also, there can be obtained another great advantage that the upper portion and leading end portion of the tiptoe portion of the boot can be fastened at the same time and thus the boot can be fixed positively to the binding for a snowboard without producing any play in the tiptoe direction of the boot.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[Fig. 1]

Fig. 1 is a longitudinal front view of bands and a rising portion of a base plate used a binding for a snowboard according to the invention;

[Fig. 2]

Fig. 2 is a side view of the bands and the rising portion of a base plate used in a binding for a snowboard according to the invention shown in Fig. 1;

[Fig. 3]

Fig. 3 is an explanatory view of the rising portion of the base plate of a binding for a snowboard according to the invention;

[Fig. 4]

Fig. 4 is a longitudinal front view of the rising portion of the base plate of a binding for a snowboard according to the invention;

[Fig. 5]

Fig. 5 is a side view of the rising portion of the base

plate of a binding for a snowboard according to the invention;
[Fig. 6]

Fig. 6 is a front view of a pin and a lever used in a binding for a snowboard according to the invention;
[Fig. 7]

Fig. 7 is an explanatory side view of bands and a rising portion of the base plate used in a binding for a snowboard according to the invention;
[Fig. 8]

Fig. 8 is an explanatory side view of fixing means for fixing together the bands and the rising portion of a base plate in a binding for a snowboard according to the other embodiment of the invention;
[Fig. 9]

Fig. 9 is an explanatory side view of the fixing means shown in Fig. 8 in a binding for a snowboard according to the invention;
[Fig. 10]

Fig. 10 is an explanatory side view of a lever used in a binding for a snowboard according to the other embodiment of the invention;
[Fig. 11]

Fig. 11 is an explanatory side view of the fixing means shown in Fig. 10 in a binding for a snowboard according to the invention;

[Fig. 12]

Fig. 12 is an explanatory side view of the fixing means shown in Fig. 10 in a binding for a snowboard according to the invention;

[Fig. 13]

Fig. 13 is an explanatory side view of a lever used in a binding for a snowboard according to the other embodiment of the invention;

[Fig. 14]

Fig. 14 is side view of fixing means for fixing together bands and the rising portion of a base plate in a binding for a snowboard according to the other embodiment of the invention;

[Fig. 15]

Fig. 15 is an explanatory side view of the fixing means shown in Fig. 14 in a binding for a snowboard according to the invention;

[Fig. 16]

Fig. 16 is side view of fixing means for fixing together the bands and the rising portion of a base plate in a binding for a snowboard according to the other embodiment of the invention;

[Fig. 17]

Fig. 17 is an explanatory side view of the fixing means shown in Fig. 16 in a binding for a snowboard according to the invention;

[Fig. 18]

Fig. 18 is a transverse plan view of a lever used in a binding for a snowboard according to the other embodiment of the invention;

[Fig. 19]

Fig. 19 is a side view of a lever shown in Fig. 18 in a binding for a snowboard according to the invention;

[Fig. 20]

Fig. 20 is an explanatory side view of the lever shown in Fig. 18 in a binding for a snowboard according to the invention;

[Fig. 21]

Fig. 21 is an explanatory transverse plan view of the lever shown in Fig. 18 in a binding for a snowboard according to the invention;

[Fig. 22]

Fig. 22 is an explanatory transverse plan view of the lever shown in Fig. 18 in a binding for a snowboard according to the invention;

[Fig. 23]

Fig. 23 is an explanatory side view of another embodiment of a binding for a snowboard according to the invention;

[Fig. 24]

Fig. 24 is a plan view of the main portions of the binding for a snowboard according to the invention shown in Fig. 23;

[Fig. 25]

Fig. 25 is a plan view of a modification of the band shown

in Fig. 24;

[Fig. 26]

Fig. 26 is a plan view of another modification of the band shown in Fig. 24;

[Fig. 27]

Fig. 27 is a section view taken along the line A-A shown in Fig. 24;

[Fig. 28]

Fig. 28 is an explanatory view of a modification of a pad shown in Fig. 27;

[Fig. 29]

Fig. 29 is a side view of a conventional binding for a snowboard;

[Fig. 30]

Fig. 30 is a front view of a conventional binding for a snowboard; and,

[Fig. 31]

Fig. 31 is an explanatory front view of the conventional binding for a snowboard shown in Fig. 30.

[Description of Reference Numeral]

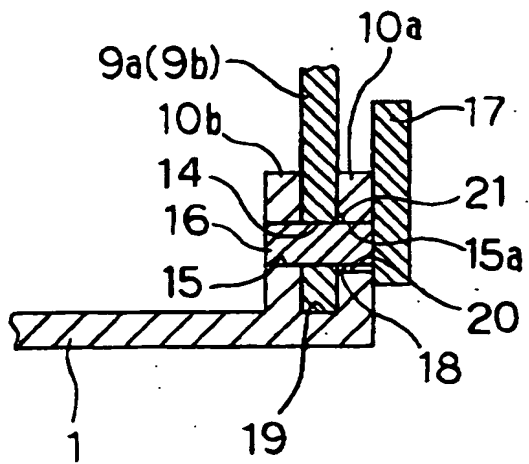
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- 2 boot
- 3 back support
- 4 cushion
- 5 ankle strap

- 6 ankle strap pad
- 7 toe strap
- 8 toe strap pad
- 9a one band
- 9b the other band
- 10 rising portion
- 10a outer section
- 10b inner section
- 11 buckle
- 12 ratchet belt
- 13 lock part
- 14 hole of the belt
- 15 hole
- 15a hole
- 16 pin
- 17 lever
- 18 projection
- 19 groove
- 20 hook groove
- 21 arc-shaped groove
- 22 knob part
- 23 projected portion
- 24 end face
- 25 slit
- 26 lever portion

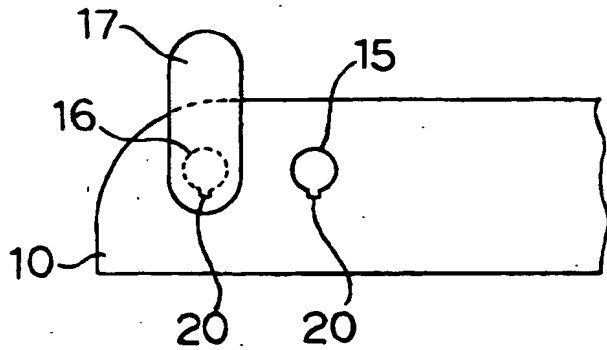
- 27 projected surface
- 28 stop pin
- 29 pivot support pin
- 30 groove
- 31 corner portion
- 32a one belt
- 32b the other belt
- 33 band
- 34 buckle
- 35 pad or fixing means
- 36 pin

【書類名】 図面

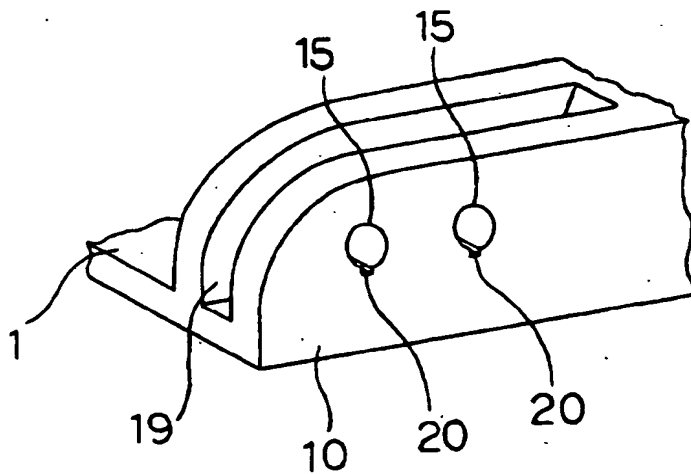
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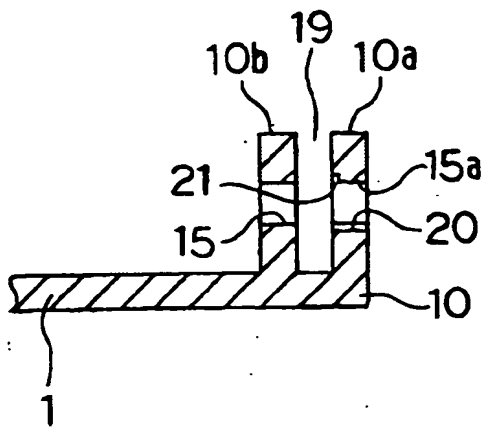
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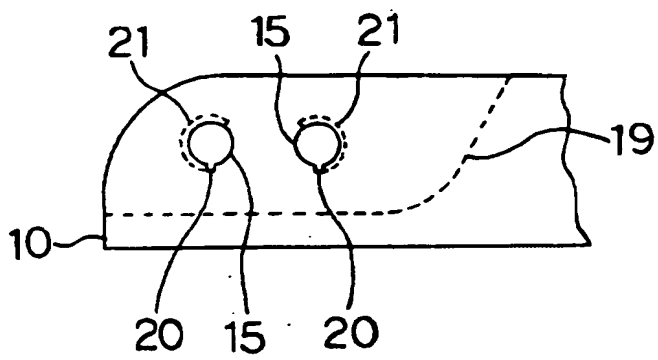
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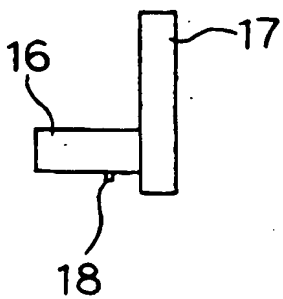
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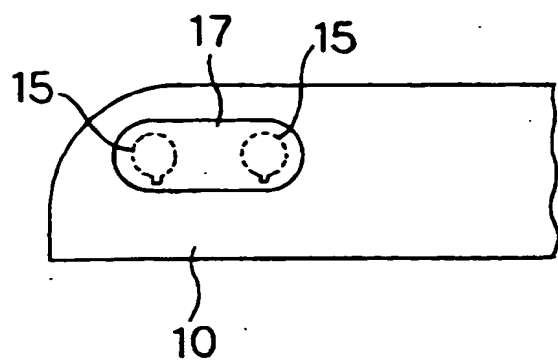
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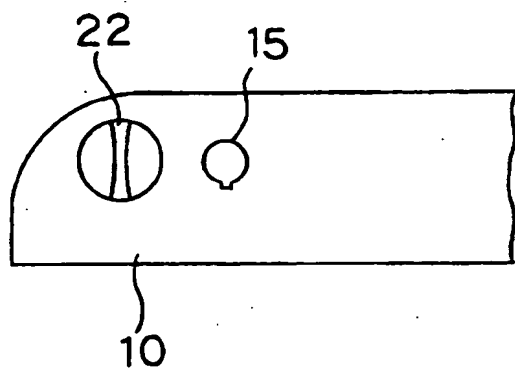
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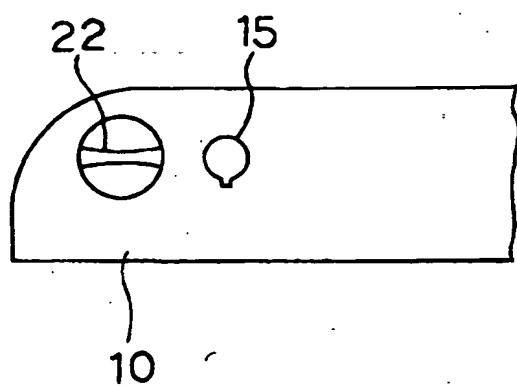
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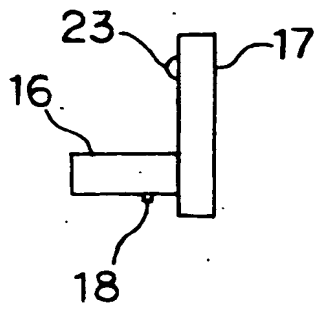
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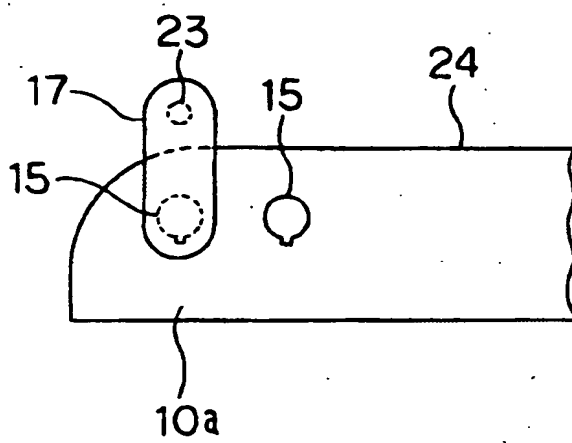
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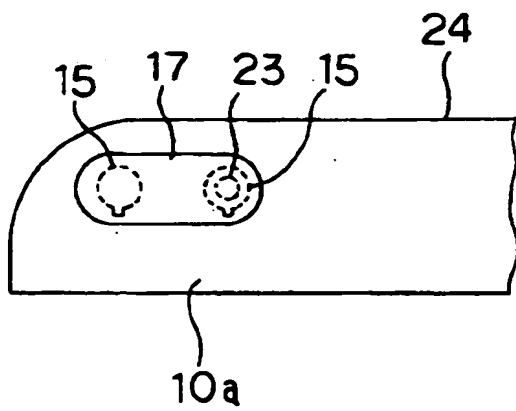
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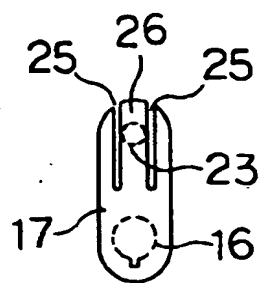
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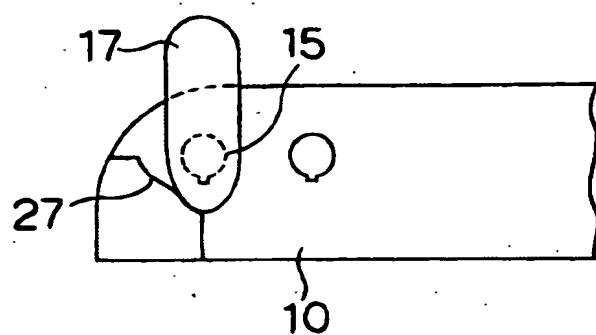
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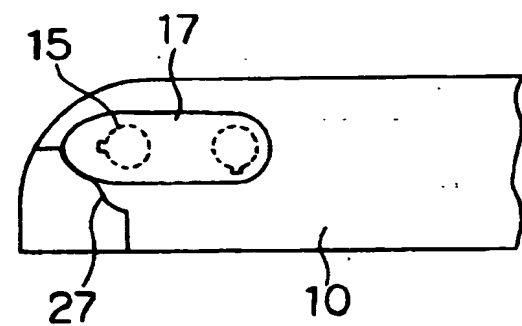
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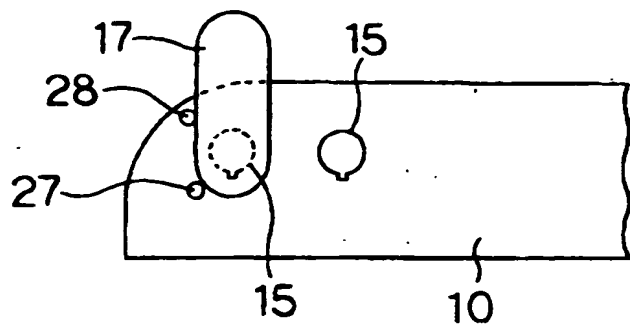
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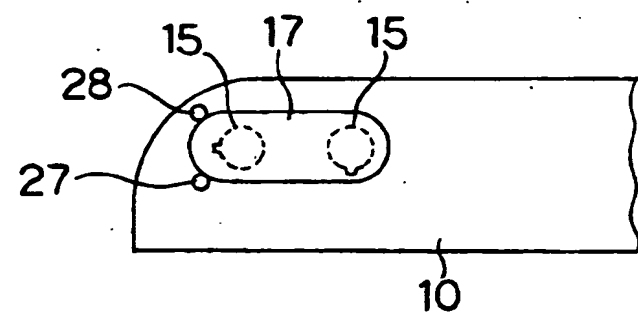
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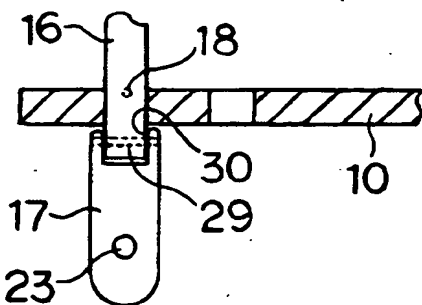
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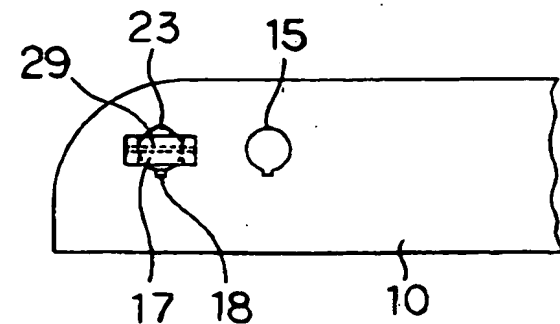
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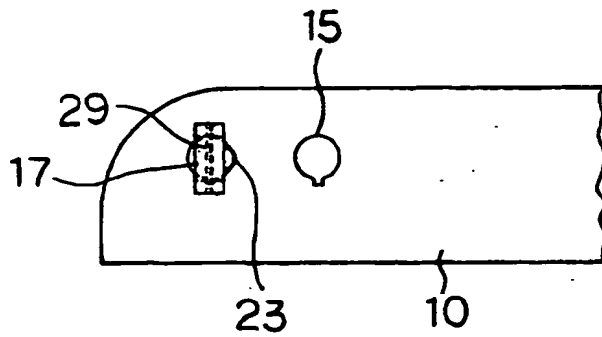
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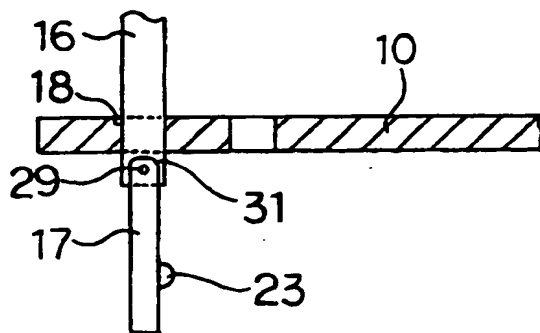
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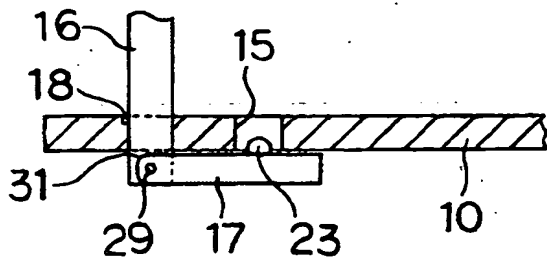
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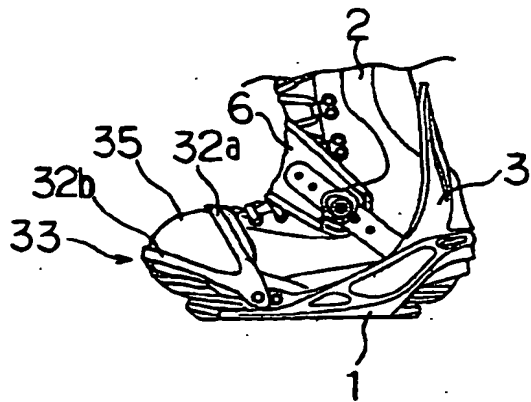
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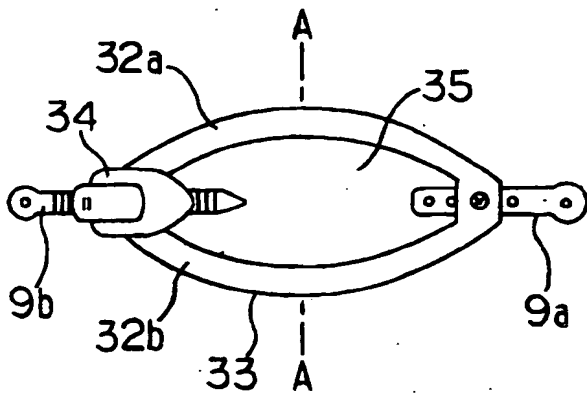
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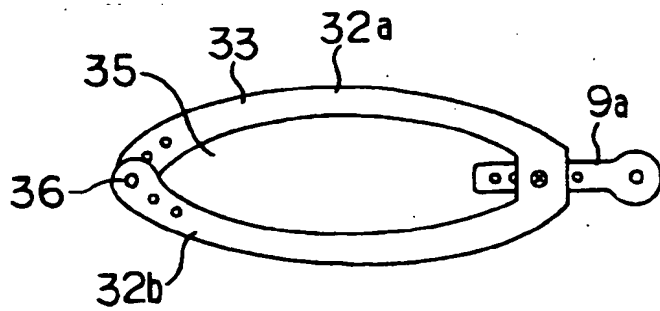
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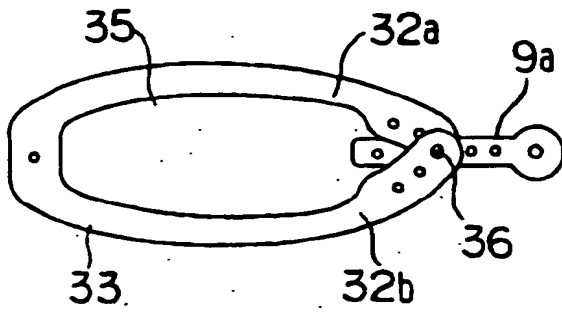
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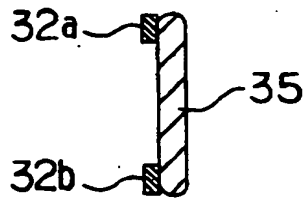
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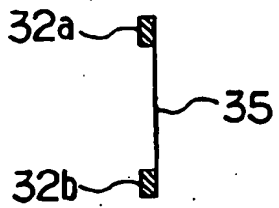
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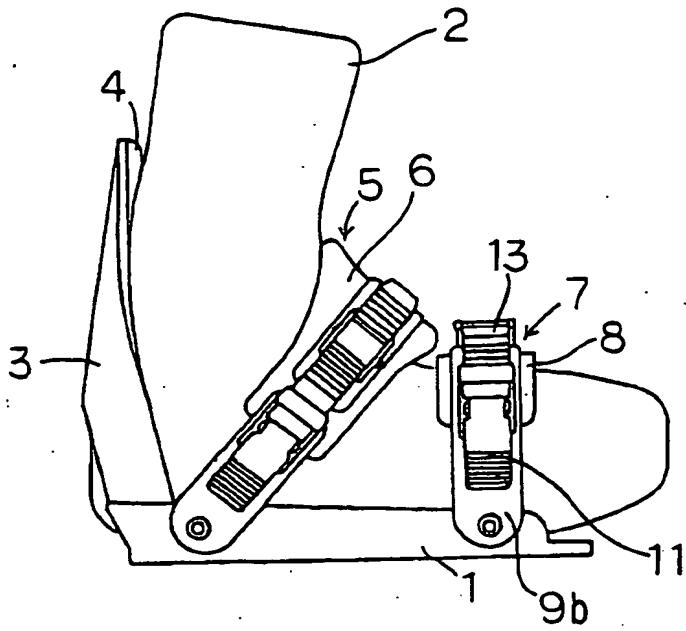
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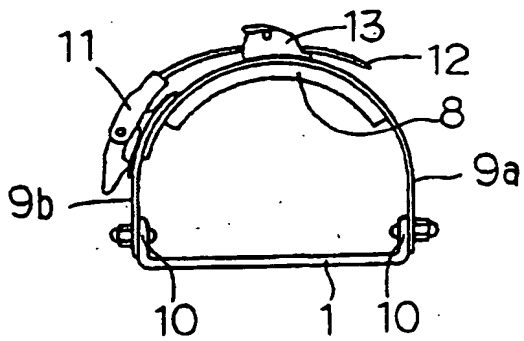
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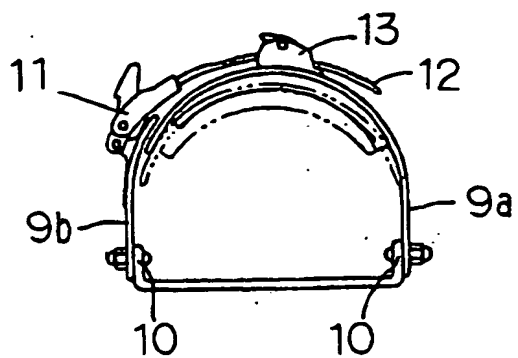
【図 29】



【図 30】



【図 31】



[Designation of Document]

Abstract

[Abstract]

[Subject] In a conventional binding for a snowboard, an ankle strap, a band of a toe strap and a base plate are fixed by bolts and nuts so that a tool is required in order to attach or detach them, which is troublesome. In addition, the toe strap tightens only an upper portion of a toe portion of the boot so that a room is formed in a direction of a tip end of the toe portion. As a result, it is impossible to tighten the boot sufficiently.

[Means for Resolution] In a binding for a snowboard according to the invention, one band having one end mounted on the one-side rising portion of a base plate is connected to the other end of the other band having one end mounted on the other-side rising portion of the base plate using a connecting member. At least one of means for mounting the bands onto the rising portion of the base plate is composed of a hole formed in the bands, a plurality of holes each having a hook groove respectively formed in the rising portion of the base plate, a pin including a projection to be inserted into the hook groove, a lever disposed on the pin for rotating the pin, and an arc-shaped groove formed in a desired depth portion of each of the plurality of holes with a hook groove coaxially with the same hole and in communication with the hook groove. In case where the pin is inserted into one of the plurality of holes with a hook groove and is then

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rotated, the projection is inserted into the arc-shaped groove, thereby preventing the pin from being removed from the present hole with a hook groove.

[Selected Drawing] Fig. 1

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[ADDRESSEE] Mr. Kozo OIKAWA, COMMISSIONER OF PATENT
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[WHO FILE THE AMENDMENT]

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[AMENDMENT 1]

[DOCUMENT TO BE AMENDED] REQUEST FOR PATENT APPLICATION

[ITEM TO BE AMENDED] INVENTORS

[HOW TO AMEND] Modification

[CONTENTS OF AMENDMENT]

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2001-179623

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[REMARKS] The name of the inventor was incorrectly indicated as "Yoshinori Murae" by a typing error. Therefore, the inventor's name is corrected to "Yoshinori Uchie" which is a correct name.

[PROOF] NECESSARY